Albrecht®
Kommunikationstechnik aus Norddeutschland

English Instruction Manual

AE 560

2-Meter Amateur Mobile Transceiver

Index:

INTRODUCTION

Tank you for purchasing the AE 560 VHF FM Mobile Transceiver.

ALBRECHT radios and other products are ranked as some of the finest in the world. Your AE 560 has been manufactured with "State of the Art" technology, and tested carefully at the factory. The AE 560 will give you satisfactory operation for many years.

INNOVATIVE AND NEW FEATURES

The AE 560 features some of the most advanced features and reliable engineering available anywhere.
Our design philosophy at AE 560 is focused on developing innovative usable features, including the following :

- The AE 560 comes equipped with 88.5Hz CTCSS Tone encoders, and with the optional CT-2 Tone Squelch decoder unit, the CTCSS Tone can be decoded for selective receiving.
- Tone burst (1750Hz) feature comes built into the AE 560.
- 30 Memory Channels.
- Programmed memory scan, passes over any empty memory channel. In the scan mode, the scan cycle will by-pass any un-programmed channels. That considerable speeds up memory scan especially when the optional memory expansion unit is installed.
- Time out timer can be set to a Duty Cycle most accommodating to the users requirements.

INSTALLATION

Mobile Antenna Installation :

50 Ohm coaxial cable is required for all antenna installations. Mobile antennas require an appropriate mounting base for proper installation and operation. Please refer to the antenna manufacturer's manual for the proper installation and mounting information. After installing your antenna, insure that you have the proper matching and best possible SWR reading. High SWR or improper matching can cause severe demage to your unit.

Caution :

High RF environments can cause severe damage to your unit. Ensure that you are not in a High RF environment when operating the AE 560.

MOBILE INSTALLATION

1. Location

The transceiver may be installed in any position in your car, where the controls and microphone are easily accessible and safe operation of the vehicle or the performance of the set will not be interfered with. Refer to the diagrams for installation of the mounting bracket :

2. Power Requirements

The transceiver can be operated from any regulated 12 or 13.8 V negative ground source.
For mobile use, power connections should be mode directly to the battery to minimize the possible ignition noise pickup.

BASE STATION INSTALLATION

For fixed base operation, a 13.8 V DC. Power Supply capable of providing at lest 15A continuously is required.
Connect the red lead of the power cable to the Positive (+) terminal, and the Negative (−) terminal of the DC. Power Supply.

FEATURES (AE 560)

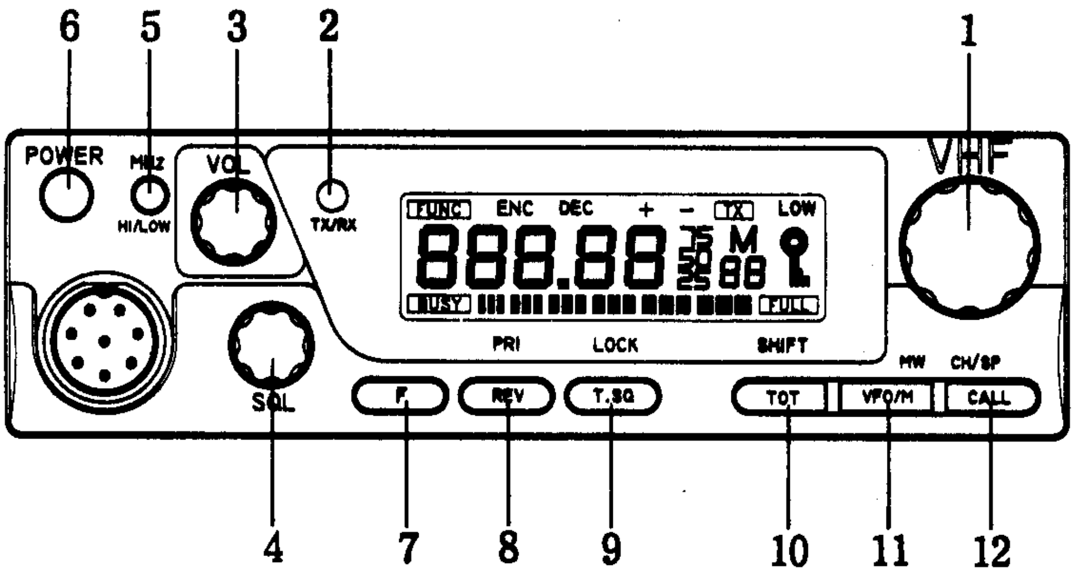
Memory Capacity : Memory Channels
Reverse : REV
Time Out Time : TOT
Priority : PRI
Repeater Shift : SHIFT
Channel Step : CH. SP
Scanning : (Mic) Up/Down
Sub audible Tne : 88.5Hz Encoder
(CTCSS encoder/decoder optional)
67Hz-254.1Hz with 50 Selections

Tone Burst : 1750Hz TONE
Power Selection : H/L
MHz Selection : MHz
Function : F
VFO/Memory : VFO/M
Call Channel : CALL
Key Lock : LOCK

OPERATION

Controls and Function

Front Panel



1. **MAIN TUNING DIAL**
   The main tuning dial/knob may be rotated in either direction to select transmit/receive frequencies, memory channels, transmit frequency offsets, and sub-audible tones.
2. **TRANSMIT/RECEIVE INDICATOR LAMP**
   When the PTT is held in the red light goes on. When a signal is received the green light goes on.
3. **VOLUME CONTROL**
   Turn the control knob clockwise to increase the volume, and counter-clockwise to decrease the volume.

4. SQUELCH CONTROL

The squelch control knob is used to eliminate noise when no signal is present. Normally this control is adjusted clockwise to the noise threshold level.

5. MHz KEY/H-L KEY

The MHz key is used to change the frequency Up or Down in one MHz steps.

With the func key, output power can be selected.

6. POWER SWITCH

Press to turn on. Press again to turn off.

7. F KEY/MONI KEY

Func key is used to access secondary controlling functions (shown in italics in this manual).

Holding this key for over 0.5 sec MONI is used to open squelch and monitor weak signals.

8. REV KEY/PRI KEY

Reverse is used to invert the Tx and Rx Frequency in Duplex (Repeater) Mode. This is useful for determining who ther Duplex Mode is required or not.

9. T. SQ/LOCK KEY

Selects sub audible Tone.

With the fun. Key turns the Lock function on & off.

10. TOT/SHIFT KEY

TOT indicates "Time Out Timer". After a set number of minutes in the Transmit mode the AE 560 will time out followed by BEEP.

With the Func key, press the Shift key to select the Repeater off Det Step and Direction (+ or −).

11. VFO.M/MW KEY

VFO/M key toggles between VFO (Variable Frequency Oscillator) and memory modes. With the Func key, MW (Memory Write) stores your selections to a chosen memory channel.

12. CALL/CH.SP KEY

This button is used to access a preprogrammed frequency (memory channel "CALL") with the push of one key.

With the Func. Key CH.SP key is used to select the desired incremental changes of the receive/transmit frequencies in steps.

While holding the CH. SP/CALL key, unit on with the power switch. Now the unit has been programmed to encode a 1750 Hz tone burst with a push of the CALL key.

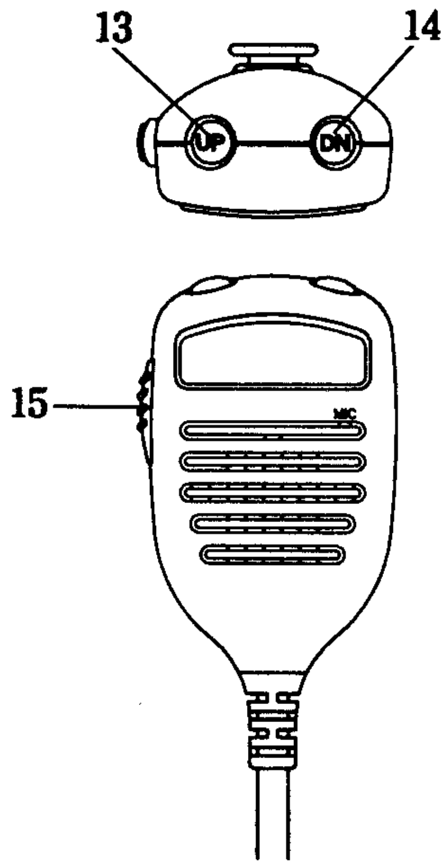
13/14. UP & DOWN KEYS
Used to step the VFO, Memory channel step selections Up or Down. Holding one of these keys for 0.5 - 3 seconds will activate the timer scan.

15. PTT KEY
The unit transmits when Push to Talk is depressed.

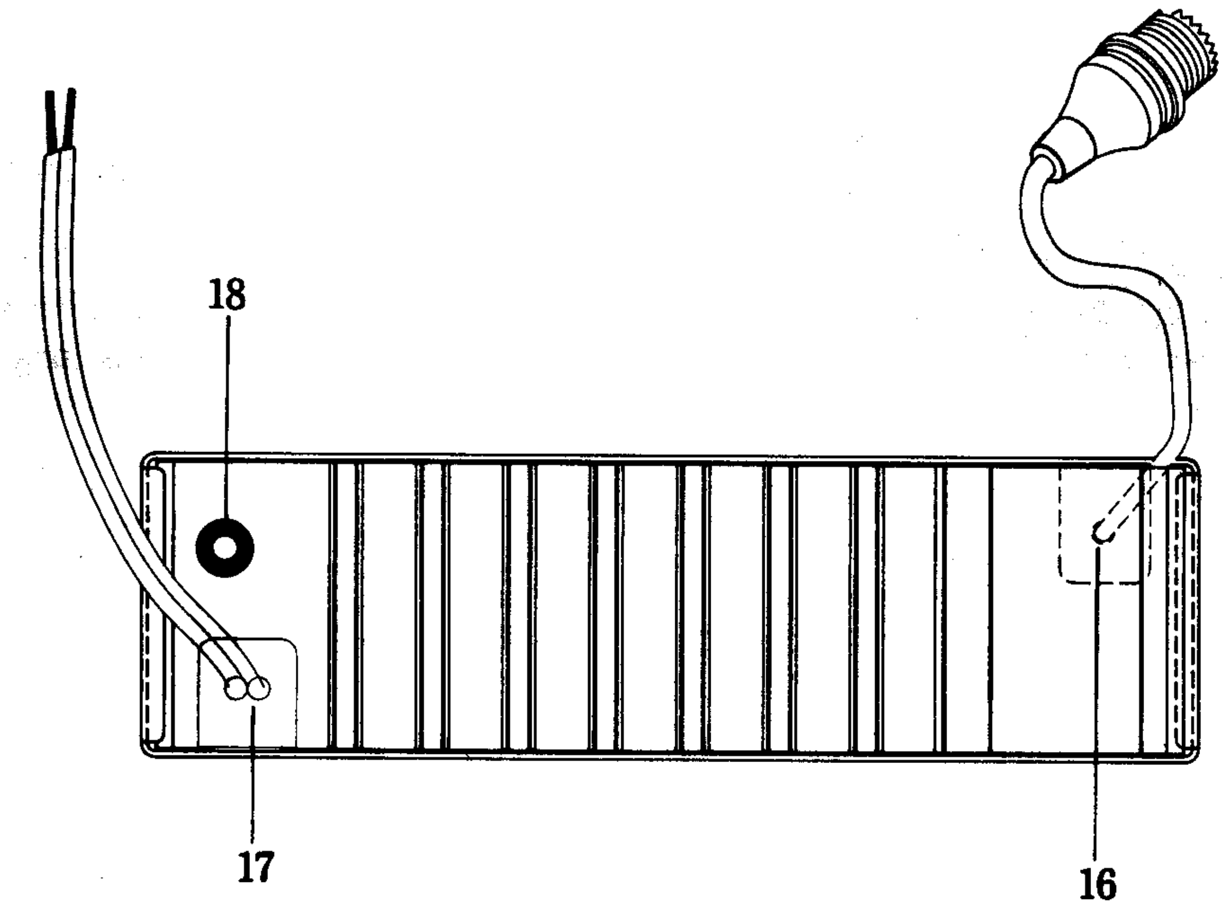
16. ANTENNA CONNECTOR
Used to connect the antenna to the set. Use a PL259 antenna-plug with 50 ohms impedance.

17. POWER CONNECTOR
Connect the supplied power cable to this connector.

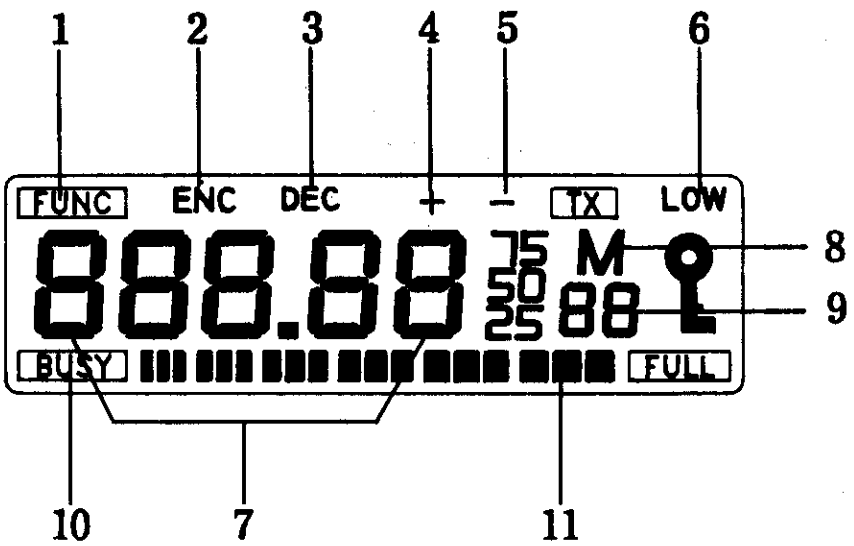
18. EXTERNAL SPEAKER JACK
When an external speaker (Imp: 8ohms) is used, connect it to this jack.



REAR PANEL



LCD DISPLAY



1. FUNC
Function is on and secondary function keys may be activated.

2. ENC
CTCSS tone encoded. The selected tone will be transmitted with the main carrier.

3. DEC
CTCSS tone decoded. For selective listening. Incoming CTCSS tones will be received and decoded.
(Tone decode is an optional feature for the AE 560).

4. "+"
Indicates Up transmitter offset in the duplex mode.

5. "−"
Indicates Down transmitter offset in the duplex mode.

6. LOW
Indicates Up transmission. With the display off. transmission is in High power.

7. 888.88
Displays the selected transmit/receive frequencies, channel step, Time out Timer, offset or sub audible tone frequencies. Commercial models only: Also can be programmed to display the selected memory channel.

8. M
Indicates activation of the memory mode.

9. 88
Indicates the selected memory channel.
("EC" will appear during a transmission with CTCSS encoded).

10. BUSY
Indicates signal being received, and open squelch.

11. Indicates relative received or transmitted signal strength. (This is for reference purposes only and is not a True indicator of the units sensitivity or received signal strength).

RECEIVE

1. Power On
Connect to DC (13.8V) Power Supply, and push the POWER switch.

2. Squelch
Set the squelch control knob to the noise threshold. The BUSY indicator will turn off.

3. Frequency Selection
Turn the Main Dial left or right to select the VFO frequency in KHz, according to the selected step value.
Use the MHz key to select one MHz Up or Down.

4. Volume Control
Use the volume control knob to set the desired audio volume.

TRANSMIT

1. Select the desired transmit frequency.
2. Hold in the PTT switch and the transmit lamp turns on. Speak into the Mic.
3. Release the PTT switch and unit reverts to monitoring mode.
4. If the LCD displays "OFF", the transmit frequency has exceeded the transmit range of this unit. No transmit is possible.

PROGRAMMING FUNCTIONS AND FEATURES

RECEIVE AND TRANSMIT MODES

A. VFO Mode (Variable Frequency Oscillator)
Press the VFO/M key. The transceiver will toggle from memory mode to VFO mode. The character "M" and a memory channel number disappear. This mode is used to change frequency using the main Tuning Dial.

B. Memory Mode

Press the VFO/M key. If you are in the VFO mode the unit will go to memory mode. In the memory mode, the character "M" and a memory channel number are displayed at the right on the LCD. Turning the main tuning dial or pushing the Up/Down keys on the mic changes the memory channel. In the memory mode you can select a desired memory channel.
Free (empty) memory channels are indicated by the blinking "M" on the LCD.

C. Call Mode

From the VFO mode or the memory mode, you can access your Call channel by pushing the Call key.
A blinking "M" indicated the Call channel is black. You can write your chosen frequency, Shift, Tone, etc. To the Call channel with the same procedures used for memory writs.

CTCSS TONE SELECTION (Sub-Audio Tone)

Push the "T-SQ" key and the sub-audible tone frequency will display (in KHz) on the LCD. To select a tone, turn the Main Dial or use the Up/Down keys on the Mic. Push the VFO/M key to return to VFO mode and, to activate Tone Decode, press the "T-SQ" key before returning to VFO mode (Optional CT-2 Tone Squelch unit required)

Encode/Decode Tones

67.0	69.3	71.9	74.4	77.0
79.7	82.5	85.4	88.5	91.5
94.8	97.4	100.0	103.5	107.2
110.9	114.8	118.8	123.0	127.3
131.8	136.5	141.3	146.2	151.4
156.7	159.8	162.2	165.5	167.9
171.3	173.8	177.3	179.9	183.5
186.2	189.9	192.8	196.6	199.5
203.5	206.5	210.7	210.7	225.7
229.1	233.6	241.8	241.8	254.1

Note : CTCSS Tones 69.3, 159.8, 165.5, 171.3, 183.5, 189.9, 196.6, 199.5, 206.5, 229.1, 254.1 are new tones available in the AE 560.

SCAN

The has 2 scanning modes.
Both scan modes employ Timer Scan system, that is : Scan stops maximum of 5 seconds if a signal is received, and resumes scanning immediately if the signal disappears.

A. VFO Scan
This scan option will scan over the entire tuning range of the band.

1. Press the VFO/M key to select the VFO mode.
2. Hold the Up/Down keys on the Mic for 0.5-3.0 seconds to start scanning.
3. To change scan direction, turn the Main Dial opposite to the direction of scan.
4. To stop scanning press the PTT key or the VFO/M key.

B. Memory Scan
This scan option will scan all programmed memory channels.

1. Press the VFO/M key to select the memory mode.
2. Hold the Up/Down keys on the Mic for 0.5-0.3 seconds to start scanning.
3. To change scan direction, turn the Main Dial opposite of the direction of scan.
4. To stop scanning press the PTT key or the VFO/M key.

PRIORITY

The Priority feature of the will monitor the primary channel for 5 seconds, and then cycle automatically the the secondary channel for 0.5 seconds. Then returns to primary channel, while remains receiving for 2 seconds if signal exists. This convenient feature will allow the user to effectively monitor a secondary channel for activity, almost as if they were monitoring two radios. Press the Fun key and then press the PRI key to select the Priority feature. When VFO is selected, a "P" will be displayed on the LCD.

A. VFO Priority

VFO Priority sets up VFO as the primary channel is the secondary channel.

B. Memory Priority

Memory Priority sets up your last selected memory channel as the primary channel. VFO frequency becomes the secondary channel.

C. Call Priority

Call Priority sets up your programmed Call channel as the primary channel. The VFO frequency becomes the secondary channel.

KEY LOCK FUNCTION

The key Lock function locks off most of the features and functions accessible from the touch tone pad and dials.

Push the func. Key and the Lock key to activate key Lock. The LCD will display " ⚷ " to indicate key Lock function is on. When key Lock function is on, only PTT, power selection, Monitor and key unlock functions are available.

SHIFT/REPEATER OFFSET

To select the Shift direction (+ or −) and Off-Set for repeater operation, press the func key and then press the TOT key. The LCD will display a "−,+" mark and show the Off-Set value (in MHz).

A. Selecting and Changing Off-Set Value

Turn the Main Dial or use the Up/Down keys on the Mic to change the Off-Set can be set from 0-15.995 MHz, and programmed in each memory channel.

B. Setting Shift Direction

By pressing the Func key and then pressing the TOT key, the "−" will change to a "+" .

To return to VFO, press the VFO/M key or the PTT key.

MEMORY PROGRAMMING AND OPERATION

To select the memory Mode, press the VFO/M key. If you are in VFO the will go to Memory mode, if you are in memory, the will go to VFO mode.

A. Memory Recall

From the VFO mode select the memory mode by pushing the VFO/M key. The LCD will display a "M" and channel number when the is the memory mode.

B. Memory Write

1. In the VFO mode, select the desired frequency, Shift, Off-Set,Tone, etc.
2. Press the Func key. A "FUNC" will be displayed on the LCD.
3. Use the Main Dial or the Up/Down key on the Mic to select the desired memory channel number.
4. Press the MW key to write to memory.

C. Memory Clear

1. In memory mode, press the Func. Key a "FUNC" is displayed.
2. Select the desired memory channel with the Main Dial or Up/Down keys on the Mic.
3. Press the MW key and the data is cleared from that memory channel.

CHANNEL STEP

The AE 560 has six selectable channel steps for VFO programmed in the unit (5K, 10K, 12.5K, 15K, 20K, 25K). The factory setting is 2 KHz.

1. Press the Func key, and then press CH.SP key. The display will show the current channel Step setting.
2. Turn the Main Dial or use the Up/Down keys on the Mic to channel Step to one of the six programmed selections.
3. Push the VFO/M key or the PTT key to return to VFO.

** Channel Steps are displayed on the LCD a follows :

5 KHz is shown as
10 KHz is shown as
12.5 KHz is shown as
15 KHz is shown as
20 KHz is shown as
25 KHz is shown as

SELECTING TRANSMIT POWER

The has two transmit power levels High (no display) and Low (Low displayed). High power is factory set at 50 Watts. Low power is factory set at 5 watts.

To change the Transmit power selection. Press the Func key and then the MHz key.

TONE BURST

To select 1750Hz Tone Burst for triggering European type repeaters.

A. Enable Tone Burst
Firstly, turn the unit off.
While holding the CALL key down, turn the unit on with the power switch.

B. Transmit Tone Burst
Push the CALL key and a 1750Hz Tone Burst will be encoded on the main carrier frequency. With 1750Hz Tone Burst activated, the CALL key acts as a Tone key acts as a Tone Burst key.

C. Disable Tone Burst
Turn the unit off. While holding the CH.SP/CALL, turn the unit on with the power switch. (CTCSS encoder momentarily disengages during the transmission of Tone Burst without CT-2).

OTHER FUNCTIONS AND FEATURES

1. TOT Time Out Timer
To protect the from excessive transmit, a Time Out Timer has been installed. This can be programmed to activate from 0 seconds to 480 seconds (8 Minutes).

Select the Time Out Timer function by pressing the TOT key, the LCD will display the selected Time Out Time in seconds. Use the Main Dial or the Up/Down keys on the Mic to change the Time Out setting. Push the VFO/M key to return to VFO or memory mode.

2. REV Reverse

Activating this Function, reverses the selected Off-Set transmit and receive frequencies. This is useful for determining whether to transmit in Semi-Duplex (utilizing a Repeater) or Simplex.

3. Open Squelch

Press and hold the Func key for more than 0.5 seconds and Squelch will open to monitor weak signals. Release Func key to return to Squelch system.

4. Beep

To disable the Beep Tone, turn the unit off. While holding the VFO/M key turn the unit on from the power switch.
To enable the Beep Tone, repeat the above.

5. Re-Set

To re-set the AE 560 turn the unit off. While holding the Func key, turn the unit on from the switch.
Re-setting the unit puts all features and functions back to the original factory settings, and erases all memory channels.

Factory Setting	⇒	AE 560
VFO	⇒	145.500
CALL	⇒	145.500
Memory Channels	⇒	Empty
Shift	⇒	None
Off Set	⇒	0.6 MHz
Tone Encoder/Decode	⇒	Disabled
Tone Frequency	⇒	88.5 Hz
Channel Step	⇒	2 KHz
Power	⇒	High
Key Lock	⇒	Off
Beep	⇒	On
TOT	⇒	Zero

SPECIFICATIONS

All specifications are for Ham Bands ONLY. No guarantee or warranty, either specifier implied, will apply to any function, feature, or specification outside the Ham Bands. Any modification which causes operation of this unit outside of the Ham Band will result in voiding any warranties associated with this transceiver.

GENERAL

Frequency Coverage :	(TX)	(RX)
	136.000-173.995 MHz	136.000-173.995 MHz
	144.000-145.995 MHz	136.000-173.995 MHz
	144.000-145.995 MHz	144.000-145.995 MHz
	144.000-147.995 MHz	136.000-174.995 MHz

Frequency Resolution.......................................5, 10, 12.5, 15, 20 & 25 KHz Steps
Antenna Impedance..50 Ohms Unbalanced
Power Supply Requirements..................................13.8 ± 10% Volts DC
Current Drain at 13.8V.....................................Receiving: Squelched less than 800 mA
Transmitting: VHF High/10A(approx) Low/5A(approx)
Dimension..140(W) x 40(H) x 154(D)mm
Weight...Approx. 1.4 Kg

TRANSMITTER

Output Power...High: 50W Low: 10W(approx)
Emission Mode..F3E (FM)
Modulation System..Variable Reluctance Frequency Modulation
Max. Frequency Deviation...................................±5 KHz
Spurious Emission..−60dB or under below carrier
Microphone...Electret Condenser Microphone
Operation Mode...Simplex/Semi Duplex
Offset...Offset from 0 to 15.995 MHz

RECEIVER

Receiving System...Superhetrodyne Dual Conversion
Intermediate Frequency.....................................1st 21.4 MHz & 2nd 455 KHz
Sensitivity..12dB sinad 16dBu (144.000-147.995 MHz)
Selectivity..More than ±6KHz at −6dB
Less than ±15 KHz at −60dB
Audio Power Output...More than 2.5W at 10% Dist
Speaker Impedance..8 Ohms